ATTACHMENT A
RD/RA STATEMENT OF WORK
PROJECT OPERATIONS PLAN

Before any field activities commence on the Site, Settling Defendants shall submit several site-specific plans to establish procedures to be followed by the Settling Defendants in performing field, laboratory, and analysis work. These site-specific plans include the:

A. Site Management Plan (SMP),
B. Sampling and Analysis Plan (SAP),
C. Health and Safety Plan (HSP), and
D. Community Relations Support Plan (CRSP).

These plans shall be combined to form the Site Project Operations Plan (POP). The four components of the POP are described in A. through D. herein.

The format and scope of each Plan shall be modified as needed to describe the sampling, analyses, and other activities that are clarified as the RD/RA progresses. EPA may modify the scopes of these activities at any time during the RD/RA at the discretion of EPA in response to the evaluation of RD/RA results, changes in RD/RA requirements, and other developments or circumstances.

A. Site Management Plan (SMP)

The Site Management Plan (SMP) shall describe how the Settling Defendants will manage the project to complete the Work required at the Site. The overall objective of the Site Management Plan is to provide EPA and MassDEP with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, budgeting, and data handling are being managed by the Settling Defendants. Specific objectives and provisions of the Site Management Plan shall include, but are not limited to the following:

1. Provide a map and a list of properties, the property owners, and addresses of owners to whose property access may be required.

2. Clearly indicate the exclusion zone, contamination reduction zone, and clean area for on-site activities.

3. Establish necessary procedures and provide sample letters to land owners to arrange field activities and to ensure EPA and MassDEP are informed of access-related problems and issues.

4. Provide for the security of government and private property on the Site.

5. Prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions.

6. Secure access agreements for the Site.

7. Establish the location of a field office for on-site activities.

8. Provide contingency and notification plans for potentially dangerous activities associated with the RD/RA.

9. Monitor airborne contaminants released by Site activities which may affect the local populations.

10. Communicate to EPA, MassDEP, and the public the organization and management of the RD/RA, including key personnel and their responsibilities.

11. Provide a list of contractors and subcontractors of the Settling Defendants in the RD/RA and description of their activities and roles.

12. Provide regular financial reports of the Settling Defendants' expenditures on the RD/RA activities.

13. Provide for the proper disposal of materials used and wastes generated during the RD/RA (e.g., drill cutting, extracted groundwater, protective clothing, disposable equipment). These provisions shall be consistent with the off-site disposal aspects of SARA, RCRA, and applicable state laws. The Settling Defendants, or their authorized representative, or another party acceptable to EPA and MassDEP shall be identified as the generator of wastes for the purpose of regulatory or policy compliance.

14. Provide plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality before and during the RD/RA. These plans shall include a description of the computer database management systems that are compatible with hardware available to EPA Region I personnel for handling media-specific sampling results obtained before and during the RD/RA. The description shall include data input fields, examples of data base management output from the coding of all RD/RA

sample data, appropriate quality assurance/quality control to ensure accuracy, and capabilities of data manipulation. To the degree possible, the data base management parameters shall be compatible with the EPA Region I data storage and analysis system.

B. Sampling and Analysis Plan (SAP)

The SAP shall be consistent with Section VIII of the Consent Decree, Quality Assurance, Sampling, and Data Analysis. The SAP consists of both (1) a Quality Assurance Project Plan (QAPP) that describes the policy, organization, functional activities, and the quality assurance and quality control protocols necessary to achieve the data quality objectives dictated by the intended use of the data; and (2) the Field Sampling Plan (FSP) that provides guidance for all fieldwork by defining in detail the sampling and data-gathering methods to be used on a project. Components required by these two plans are described below.

The SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on all field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each round of field or laboratory activities. The purpose of the SAP is to ensure that sampling data collection activities will be comparable to and compatible with previous data collection activities performed at the Site while providing a mechanism for planning and approving field activities. The overall objectives of the two documents comprising the SAP are as follows:

1. to document specific objectives, procedures, and rationales for fieldwork and sample analytical work;

2. to provide a mechanism for planning and approving Site and laboratory activities;

3. to ensure that sampling and analysis activities are necessary and sufficient; and

4. to provide a common point of reference for all Settling Defendants to ensure the comparability and compatibility of all objectives and the sampling and analysis activities.

To achieve this last objective, the SAP shall document all field and sampling and analysis objectives as noted above, as well as all data quality objectives and specific procedures/protocols for field sampling and analysis.

The following critical elements of the SAP shall be described for each sample medium (e.g., ground water, surface water, soil, sediment, air, and biota) and for each sampling event:

1. sampling objectives (e.g., engineering related, well yields, zone of influence, performance monitoring, demonstration of attainment, five year review, etc.);

2. data quality objectives, including data uses and the rationale for the selection of analytical levels and detection limits (see Guidance for the Data Quality Objectives Process, EPA QA/G-4 (EPA/600/R-96/055, August 2000); Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software QA/G-4D (EPA/240/B-01/007, September 2001); and Final Guidance Data Usability in Risk Assessment (Part A) (publication 9285.7-09A, April 1992, PB92-963356); Guidance for Data Usability in Risk Assessment (Part B). (publication 9285.7-09B, May 1992, PB92-963362).

3. site background update, including an evaluation of the validity, sufficiency, and sensitivity of existing data;

4. sampling locations and rationale;

5. sampling procedures and rationale and references;

6. numbers of samples and justification;

7. numbers of field blanks, trip blanks, and duplicates;

8. sample media (e.g., ground water, surface water, soil, sediment, air, and buildings, facilities, and structures, including surfaces, structural materials, and residues);

9. sample equipment, containers, minimum sample quantities, sample preservation techniques, maximum holding times;

10. instrumentation and procedures for the calibration and use of portable air, soil-, or water-monitoring equipment to be used in the field;

11. chemical and physical parameters in the analysis of each sample;

12. chain-of-custody procedures must be clearly stated (see EPA NEIC Policies and Procedures Manual, EPA 330/9-78 001-R) (May 1978, revised May 1986);

13. procedures to eliminate cross-contamination of samples (such as dedicated equipment);

14. sample types, including collection methods and if field and laboratory analyses will be conducted;

15. laboratory analytical procedures, equipment, and detection limits;

16. equipment decontamination procedures;

17. consistency with the other parts of the Work Plan(s) by having identical objectives, procedures, and justification, or by cross-reference;

18. analysis from each medium for all Hazardous Substance List (HSL) inorganic and organic analytes;

19. analysis for other potential site-specific contaminants not on the HSL in each media;

20. analysis of selected background and contaminated ground water samples for substances listed in RCRA Appendix IX, unless the exclusion of certain substances on this list is approved by EPA; and

21. for any limited field investigation (field screening technique), provisions for the collection and laboratory analysis of parallel samples and for the quantitative correlation analysis in which screening results are compared with laboratory results.

The SAP must be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on each round of field sampling and analysis work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RD/RA, the SAP shall be revised as necessary to cover each round of field or laboratory activities. Revisions or a statement regarding the need for revisions shall be included in each deliverable describing all new field work.

The SAP shall allow for notifying EPA, at a minimum, three weeks before field sampling or monitoring activities commence. The SAP shall also allow split, replicate, or duplicate samples to be taken by EPA (or their contractor personnel) and by other Settling Defendants approved by EPA. At the request of EPA, the Settling Defendants shall provide these samples in appropriately pre-cleaned

containers to the government representatives. Identical procedures shall be used to collect the Settling Defendants and the parallel split samples unless otherwise specified by EPA. Several references shall be used to develop the SAP, for example:

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, or most recent update);

3. EPA Requirements for Quality Assurance Plans, QA/R-5 (EPA/240/B-01/003) March 2001;

4. Region I, EPA-New England Quality Assurance Project Plan Program Guidance, April 2005;

5. Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055) August 2000;

6. Data Quality Objectives Decision Errors Feasibility Trials (DEFT) Software, QA/G-4D (EPA/240/B-01-007) September 2001);

7. Guidance for the Data Quality Objectives Process for Hazardous Waste, QA/G-4HW (EPA/600/R-00/007) January 2000;

8. Guidance for Preparing Standard Operating Procedures (SOPs), QA/G-6 (EPA/240/B-01/004) March 2001;

9. Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996;

10. Guidance for Data Quality Assessment: Practical Methods for Data Analysis, QA/G-9 (QA00 Version, EPA/600/R-96/084) July 2000;

11. EPA Requirements for Quality Management Plans, QA/R-2 (EPA 240/B-01/002) March 2001; and

12. Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009) December 2002.

B.1. QUALITY ASSURANCE PROJECT PLAN (QAPP)

The Quality Assurance Project Plan (QAPP) shall document in writing the site-specific objectives, policies, organizations, functional activities, sampling and analysis activities and specific quality assurance/quality control activities designed to achieve the data quality objectives (DQOs) of the RD/RA. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

Project activities throughout the RD/RA shall comply with the QAPP. QAPP sampling and analysis objectives and procedures shall be consistent with EPA Requirements for Quality Assurance Plans (QA/R-5) and appropriate EPA handbooks, manuals, and guidelines including Guidance for Quality Assurance Project Plans, QA/G-5 (EPA/240/R-02/009) December 2002, Region I, EPA-New England Quality Assurance Project Plan Program Guidance, April 2005, and Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136), Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, (EPA-600/4-84-041 April 1984)

All the QAPP elements identified in EPA QA/R-5 and EPA QA/G-5 must be addressed.

As indicated in EPA QA/R-5 and EPA QA/G-5, a list of essential elements must be considered in the QAPP for the RD/RA. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills requirements of EPA QA/R-5 and EPA QA/G-5. Examples of how this cross reference might be accomplished can be found in the Guidance for the Data Quality Objectives Process, QA/G-4 (EPA/600/R-96/055) and the Data Quality Objectives decision Errors Feasibility Trials (DEFT) Software, QA/G-4D (EPA/240/B-01/007). EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines should be applied when they are available and applicable.

Laboratory QA/AC Procedures.

The QA/QC procedures and SOPs for any laboratory (both fixed and mobile) used during the RD/RA shall be included in the Settling Defendants' QAPP. When this work is performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1. be approved by the State Laboratory Evaluation Program, if available;

2. have successful performance in one of EPA's National Proficiency Sample Programs (i.e., Water Supply or Water Pollution Studies or the State's proficiency sampling program);

3. be familiar with the requirements of 48 CFR Part 1546 contract requirements for quality assurance; and

4. have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures.

The Settling Defendants are required to certify that a representative portion of the data has been validated by a person independent of the laboratory according to the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, Revised December 1996 (amended as necessary to account for the differences between the approved analytical methods for the project and the current Contract Laboratory Program Statements of Work (CLP SOW)). A data validation reporting package as described in the guidelines cited above must be delivered at the request of the EPA project manager. Approved validation methods shall be contained in the QAPP.

The independent validator shall not be the laboratory conducting the analysis and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent validator shall certify that the data has been validated, discrepancies have been resolved if possible, and the appropriate qualifiers have been provided.

Data Package Requirements.

The Settling Defendants must require and keep the complete data package and make it available to EPA on request in order for EPA to conduct an independent validation of the data. The complete data package shall consist of all results, the raw data, and all relevant QA/QC information. The forms contained in the data validation functional guidelines must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be included. All laboratory tracking information must also be included in the data package. An example data package deliverable is listed below:

1. a summary of positive results and detection limits of non-detects with all raw data;

2. tabulate surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;

3. tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;

4. associated blanks (trip, equipment, and method with accompanying raw data for tests);

5. tabulated initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;

6. tabulated retention time windows for each column;

7. a record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;

8. the chain of custody for the sample shipment groups, *DAS packing slip*, *DAS analytical specifications;*

9. a narrative summary of method and any problems encounter during extraction or analysis;

10. tabulated sample weights, volumes, and % solids used in each sample calculation;

11. example calculation for positive values and detection limits; and

12. SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or the current CLP SOW forms must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labeled. The concentration of all standards analyzed with the amount injected must be

included. *All internal and external laboratory sample tracking information must be included in the data package.*

B.2 Field Sampling Plan (FSP)

The objective of the Field Sampling Plan is to provide EPA and all parties involved with the collection and use of field data with a common written understanding of all field work. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods (OSWER Directive 9355.0-14, EPA/540/P-87/001), December 1987, which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites. The FSP shall be site-specific and shall include the following elements:

1. Site Background. If the analysis of the existing Site details is not included in the Work Plan or in the QAPP, it must be included in the FSP. This analysis shall include a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the Site. The analysis shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps. Including this discussion in the FSP will help orient the sampling team in the field.

2. Sampling Objectives. Specific objectives of sampling effort that describe the intended uses of data must be clearly and succinctly stated.

3. Sampling Location and Frequency. This section of the FSP identifies each matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples, the type of sample (water, soil, etc.), and the number of quality control samples (duplicates, trip blanks, equipment blanks, etc.). Figures shall be included to show the locations of existing or proposed sample points.

4. Sample Designation. A sample numbering system shall be established for the project. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g., surface soil, ground water, soil boring), and the name of the Site.

5. Sampling Equipment and Procedures. Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling that are necessary to enable the field team to gather data that will meet the Data Quality Objectives (DQOs). A list should include the equipment to be used and the material composition (e.g., Teflon, stainless steel) of equipment along with decontamination procedures.

6. Sampling Handling and Analysis. A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain-of-custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

Each Field Sampling Plan submitted as a part of the Project Operations Plan for the RD/RA shall be sufficiently detailed to carry out the study, and shall provide data needed to address the objective of the study and to complete the study. Each study shall be designed to achieve a high performance on the first attempt. Each work plan shall be related (by cross-references) to the other requirements in the Project Operations Plan.

C. Health and Safety Plan (HSP)

The objective of the site-specific Health and Safety Plan is to establish the procedures, personnel responsibilities and training necessary to protect the health and safety of all on-site personnel during the RD/RA. The plan shall provide procedures and plans for routine but hazardous field activities and for unexpected Site emergencies.

The site-specific health and safety requirements and procedures in the HSP shall be updated based on an ongoing assessment of Site conditions, including the most current information on each medium. For each field task during the RD/RA, the HSP shall identify:

1. possible problems and hazards and their solutions;

2. environmental surveillance measures;

3. specifications for protective clothing;

4. the appropriate level of respiratory protection;

5. the rationale for selecting that level; and

6. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion zones on a map and in the field. The HSP shall describe the on-site person responsible for implementing the HSP for the Settling Defendants representatives at the Site, protective equipment personnel decontamination procedures, and medical surveillance. The following documents and resources shall be consulted:

1. OSHA e-HASP Software – Version 1.0, September 2003 (www.osha.gov/dep/etools/ehasp/index.html)

2. Hazardous Waste Operations and Emergency Response (Department of Labor, Occupational Safety and Health Administration, (OSHA) 29 CFR Part 1910.120); and

3. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B (NIOSH/OSHA/EPA 1986).

OSHA regulations at 40 CFR 1910, which describe the routine emergency provisions of a site-specific health and safety plan, and the OSHA e-HASP Software, shall be the primary references used by the Settling Defendants in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to ensure compliance with all applicable state and Federal occupational health and safety regulations. The HSP shall be updated at the request of EPA during the course of the RD/RA and as necessary.

D. Community Relations Support Plan (CRSP)

EPA shall develop a revised Community Relations Plan (CRP) to describe public information and public involvement activities anticipated during the RD/RA. The Settling Defendants shall develop a Community Relations Support Plan, whose objective is to ensure and specify adequate support from the Settling Defendants for the community relations efforts of EPA. This support shall be at the request of EPA and may include:

1. participation in public informational or technical meetings, including the provision of presentations, logistical support, visual aids and equipment;

2. publication and copying of fact sheets or updates; and

3. assistance in placing EPA public notices in print.